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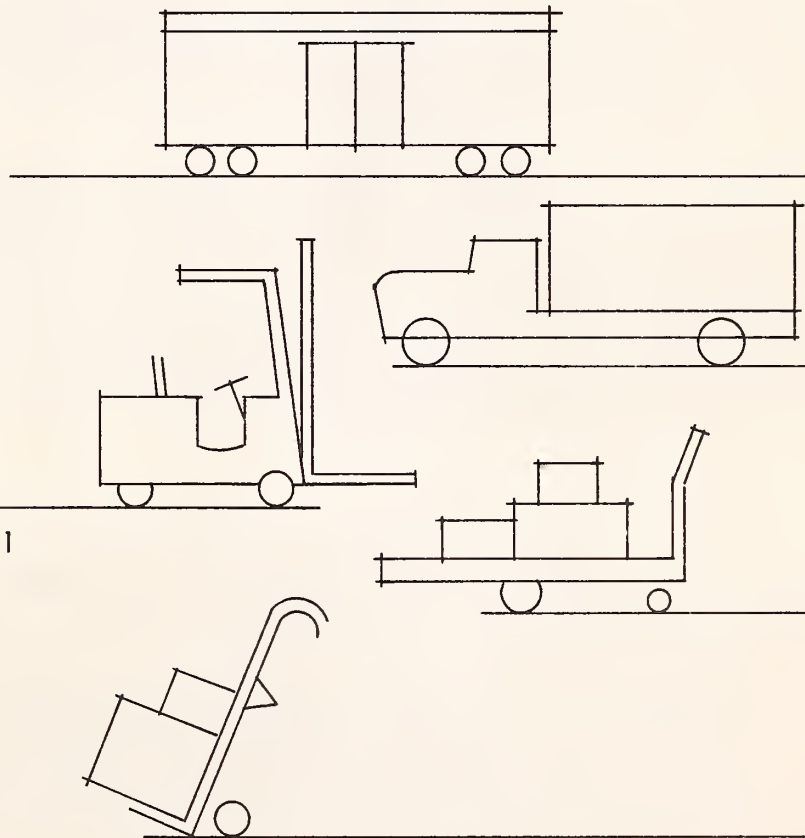
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Guides for Improving Institutional Wholesale Grocery Warehousing



Marketing Bulletin No. 31

The institutional wholesale grocery industry is experiencing a period of rapid change similar to the experiences during the past decade of the wholesale grocery industry which supplies retail stores. A continued rise in labor costs and increases in demand for customer services have forced the institutional wholesaler to look for areas in which operating costs can be reduced.

Warehouse labor cost is one of the largest single costs of the institutional wholesaler. Many institutional wholesalers have found that warehousing costs can be reduced considerably through the use of more effective work methods and improved warehousing facilities. Problems faced in the institutional wholesale grocery warehouse are similar to those in general wholesale grocery warehouses of comparable size. Consequently, many of the principles tested and developed in the general wholesale grocery industry either can be applied directly or adapted to fit needs of the institutional wholesaler. This report gives some suggestions for improving the warehouse handling operation, the building design, and the layout of institutional wholesale grocery warehouses.

The guides contained in this report are based on studies and observations in eleven institutional wholesale grocery warehouses located throughout the country. These wholesalers were selected on the basis of their reputations for conducting above average warehousing operations and their differences in volumes of business and materials handling systems. The studies in these warehouses included testing of previously developed methods for general grocery warehouses by cost analysis, general observations, and time studies. These suggestions presented in this condensed way may be useful to institutional wholesalers in reducing or holding down their costs.

The study was conducted under a cooperative agreement with the Institutional Food Services Division, General Foods Corporation, and is part of a larger project aimed at holding down the costs of marketing farm products by increasing the efficiency of food wholesaling and retailing. The study was conducted under the supervision of R. W. Hoecker, chief, and John C. Bouma, marketing specialist, of the Wholesaling and Retailing Research Branch, Transportation and Facilities Research Division, Agricultural Marketing Service. Illustrations in this bulletin were prepared by General Foods Corporation.

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GUIDES FOR IMPROVING INSTITUTIONAL WHOLESALE GROCERY WAREHOUSING

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CUT WAREHOUSING COSTS

By Applying These Techniques

The guides explained in this report can be used as suggestions for improving overall warehousing efficiency in the institutional wholesale grocery warehouse. Operations vary greatly with size, location, and competitive situations; however, the suggestions presented in this report can be adapted to fit your individual situation.

WAREHOUSING COSTS DEPEND ON....

1. Work methods, and
2. Warehousing facilities.

FIRST

SEPARATE THE WAREHOUSE OPERATION INTO FUNCTIONS.....

Receiving

Assembling orders

Checking

Loading

Handling of less-than-full-case quantities

AND APPLY PRINCIPLES OF EFFECTIVE WORK METHODS.

SECOND

PROVIDE FACILITIES THAT WILL PERMIT EFFECTIVE WORK METHODS.

RECEIVING MERCHANDISE

1. Use one man palletizing crews.

Two men palletizing in a rail car or truck cannot do twice as much as one man except in handling extremely heavy merchandise such as sugar, flour, and shortening. Each of the employees in the receiving crew should be assigned to a separate rail car.

The driver of an inbound truck is normally responsible for palletizing the merchandise in his truck and moving the full pallets to a holding area on the truck dock. Assisting the driver reduces efficiency and provides a costly service that is not usually required of the warehouse.

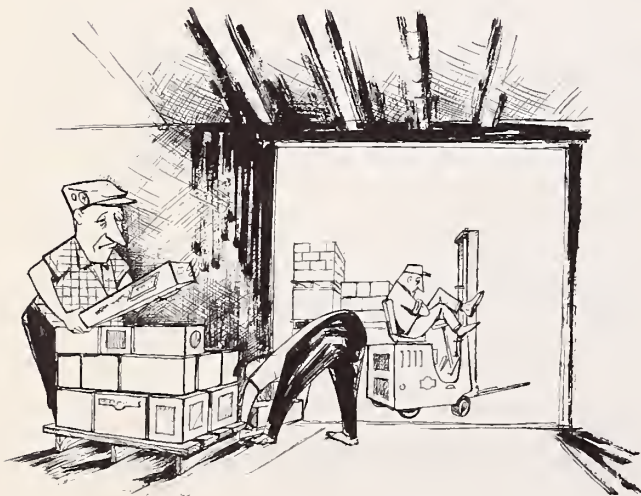
2. Provide adequate holding areas.

Provide holding areas at the rail and truck docks to allow temporary storage of palletized merchandise from rail cars and trucks. Holding areas store merchandise that would otherwise be placed in an aisle.

3. Separate the functions of palletizing and transferring to storage.

Separation of these functions eliminates time wasted by the palletizer in waiting for the forklift and eliminates forklift delays in waiting for palletizing crews. One forklift can transfer merchandise to storage from several palletizers and perform other duties during slack periods.

Wrong Way



Right Way



4. Use pallet jacks for removing pallets from rail cars and trucks.

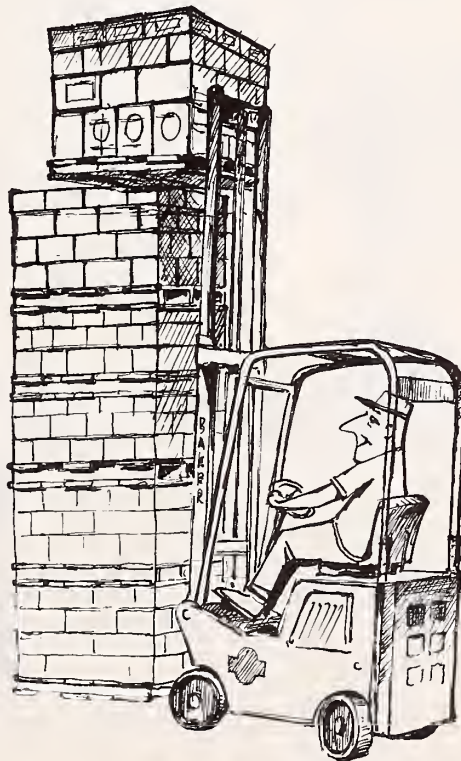
Use manually operated or battery-powered pallet jacks to remove palletized merchandise from rail cars and trucks. The pallet jack allows one man to receive, palletize, and move merchandise to a holding area without having to wait for a forklift operator.

5. Maximize forklift truck use.

Restock order selection lines before the beginning of order assembly and assign a fork operator to refill selection slots in a specific area during the order assembly. This reduces the interruptions for the fork operator and the delay time for the selectors while waiting for the forklift to make let-downs.

6. Use an adequate mast height for forklift trucks.

Use a forklift truck with a mast high enough for placing a pallet of merchandise in the highest storage location in the warehouse. An inadequate mast requires the forklift operator 3 additional minutes to remove or store a pallet that cannot be reached.



ORDER SELECTION

1. Keep aisles clear.

Extremely narrow aisles, merchandise stored in aisles, and empty pallets left in aisles block the aisles. Many aisle blocks can be prevented by:

- A. Providing holding areas for inbound and outbound merchandise;
- B. Instructing forklift operators to periodically remove empty pallets from the aisles; and
- C. Having order selectors lean the empty pallets against the pallet rack or pallet of merchandise in a floor slot.



2. Provide backlog of invoices for selectors.

When the tabulating department personnel and the order assembly crew both report for work at the same time, the selectors often have to wait for orders to be processed and routed before they can begin assembling orders. This delay can be reduced by having the selectors report for work later than the tabulating department personnel, when orders have been processed and routed and are ready for assembly.

Wrong Way



Right Way



3. Don't allow selectors to assist the checker in checking the merchandise.

Allowing order selectors to assist the checker reduces checking productivity approximately 75 percent.

4. Prevent selectors from "picking over" invoices.

Order selectors, especially those whose productivity is being posted on a bulletin board, will sort through a stack of invoices to find the larger orders that will improve their productivity. This practice results in wasted time when the selector is doing the sorting and also prevents the orders from being selected in the proper sequence for loading. Sorting of invoices can be reduced by a strict policy prohibiting sorting and penalties for violators. Another method is to construct a dispenser type of box that prevents the removal of more than one invoice page at a time or the return of an unwanted invoice.

5. Route orders before order assembly.

Routing orders for a delivery truckload before order assembly begins allows the assembled orders to be loaded in the proper sequence immediately after the order is assembled and checked. Failure to route the orders before assembly requires that the entire truckload be assembled before loading can begin. The dock becomes congested and time is wasted in jockeying assembled orders into the proper loading sequence.



6. Have orders for repacked merchandise selected in advance of the rest of the order.

If it is necessary for a separate selector to assemble less-than-full-case quantities, this selector should report to work 30 minutes to an hour earlier than the regular selectors to prevent the regular selectors having to wait for the repacked portion of the order.

CHECKING ASSEMBLED ORDERS

1. Have selectors position cases for easy checking.

When 4-wheel and 2-wheel handtrucks are used for order selection, much time can be saved if the selectors position the cases of merchandise on the selector truck in a manner that will make it easy for the checker to read the merchandise labels.

2. Have selectors mark stop numbers on cases.

Instruct order selectors to mark a stop number on each case of merchandise; that is, a number 1 on cases that are to be delivered to the first customer on the delivery route. The stop numbers help the checker to find an order and to be sure the order is loaded in the proper delivery sequence. The stop numbers also help the truck driver to find the order when it is to be unloaded.

Wrong Way



Right Way



3. Don't try for 100 percent accuracy.

A sufficient check of the accuracy of orders can be accomplished by having commodity descriptions of assembled orders checked at the warehouse and having the driver count the merchandise when he unloads it. Although accuracy of order assembly is very important, it is useless to try for 100 percent accuracy by checking the merchandise several times; no checking system will catch and correct all errors.

4. Keep records of errors for each selector.

Once every 3 or 4 months, or during periods when excessive errors are noticeable, keep error records for each selector for a 2-week period. These records should be kept without the selectors' knowledge, and at the end of the 2 weeks they should be posted on an employee bulletin board. The error records will:

- A. Show the selectors their work is being checked individually;
- B. Point out personnel who consistently make more errors than the average; and
- C. Point out to management when the overall error rate has increased.



5. Investigate causes of excessive errors.

When the records show excessive errors either by individual selectors or by the selectors as a group, causes of the errors should be investigated and the necessary corrective action should be taken.

LOADING DELIVERY TRUCKS

1. Use only one man for loading a delivery truck.

Time studies of the loading function show that productivity per man-hour is approximately 33 percent greater with one man loading a truck than with 2-man teams.



2. Position cases in the delivery truck by order and by sequence of unloading.

The orders should be positioned in the delivery truck to facilitate unloading the merchandise at the delivery stops. This is best accomplished by:

- A. Loading merchandise in the reverse order that it will be unloaded from the delivery truck; that is, merchandise for the first stop will be loaded last, and that for the last stop will be loaded first, in the front of the truck.
- B. Loading the merchandise so that all cases in an order are placed together in the delivery truck. Although this is not always possible because of the wide range in case sizes, it should be the general practice.

3. Provide adequate surge areas.

Provide holding areas at the shipping dock to allow the order selectors to line up their assembled orders behind the proper delivery truck for checking and then loading. (This does not apply to warehouses using conveyors for shipping.) Holding areas store merchandise that would otherwise be stored in an aisle.



4. Stagger the starting time of loaders and selectors.

Loading cannot begin until the selectors have assembled orders for checking and then loading. Also, at the end of the day the loaders will finish later than the selectors. If the loaders and the selectors have the same working hours, the loaders will waste time waiting for work at the beginning of the shift, and the selectors will waste time at the end of the shift waiting for the loaders to catch up. This problem may be solved by having the loaders report for work approximately one-half hour later than the order selectors.

HANDLING LESS-THAN-FULL-CASE QUANTITIES

1. Provide security for items that are highly susceptible to pilferage.

Keep small high-unit-value items that are highly susceptible to pilferage in a separate enclosed area within the warehouse. This practice reduces the temptations of warehousemen.

Wrong Way



Right Way



2. Provide adequate containers for repack room order assembly.

Provide cardboard boxes or other containers for order selection in the repack room. The boxes allow the order selector to make a complete trip through the repack room assembling the items directly into the box or shipping container. This practice avoids the costly method of assembling the items on a bench and then packing them into a shipping container.

3. Store half or part cases in the normal selection slots.

Whenever possible, keep items sold in less-than-full-case quantities that do not require special security in the regular selection slots throughout the warehouse. These cases of merchandise can be broken and selected in the normal course of assembling an order. This method of cutting and storing broken cases has the following advantages over the method of precutting cases and storing them in the repack room:

- A. Items stored in the repack room require special handling techniques, such as handstacking, that are less efficient than the handling techniques throughout the warehouse.
- B. Precutting cases allows dust to accumulate on the merchandise, and also this method of handling broken cases requires two inventories, one in part cases and one in full cases.

4. Use bins for small slow-moving merchandise.

Store small slow-moving items that are always sold in less-than-full-case quantities, such as spices, in metal bins or shelves. This reduces the space necessary to store the items and makes them easy to find.

5. Use grocery stocking carts in large repack rooms.

If the repack orders are large, a grocery stocking cart can be used to carry the container for order assembly. The carts are also handy for carrying merchandise for restocking the repack room shelves.

IMPROVEMENT OF EXISTING WAREHOUSE FACILITIES

Many of the suggestions in this report can be applied to old as well as new warehouses. In many old warehouses and in warehouses designed for purposes other than grocery distribution, the physical characteristics restrict the efficiency. These warehouses can usually be improved if efforts are concentrated on locating problems that can be solved. The following guides usually can be applied to improve the effectiveness of an old or poorly designed warehouse.

1. Clean up the warehouse.

The cleanliness of a warehouse is very important. In dirty warehouses the dust will settle on cases of merchandise and on containers that remain from the sale of part cases.

A dirty warehouse provides unpleasant working conditions and may lower employee moral. Institutional wholesale grocery warehouses should review their cleaning programs to be sure that the warehouse is cleaned properly at frequent intervals.

2. Dispose of unnecessary material or salvage merchandise.

Institutional warehouses collect unneeded materials and equipment through years of changes and improvements. These materials take up valuable working space, contribute to poor working conditions, and are occasionally a fire hazard.

Broken or damaged merchandise should be disposed of on a regular schedule to avoid accumulation of large piles of spoiled merchandise.

3. Control pests.

The warehouse manager should be held responsible for sanitary conditions within the warehouse, including pest control. The control of pests within the warehouse includes two functions: Inspection and extermination. The warehouse manager should conduct frequent scheduled tours of the warehouse in search of evidence of pests. When evidence of pests is found, corrective action should be taken immediately.

4. Improve the lighting.

Many old institutional wholesale grocery warehouses have inadequate lighting systems. Poor lighting systems either should be replaced or supplemented with a new lighting system that will provide enough light for reading invoices and merchandise labels. Improved lighting will reduce order selection errors and provide more pleasant working conditions.

5. Clear the aisles.

Aisles, especially those in warehouses without forklift trucks, are used for storage and through the years can become completely blocked. Blocked aisles require the warehousemen either to travel a longer alternate route or to climb over the merchandise. This can be avoided by having the warehousemen reopen and widen aisles on a regular schedule.



6. Eliminate or reduce bottlenecks.

Bottlenecks created by the physical nature of the warehouse are frequently ignored, and the overall lack of efficiency is attributed to the old warehouse. Concentrated efforts to eliminate bottlenecks through minor construction, scheduling, changes in work methods, addition of equipment, and many other methods usually reduce operating costs.

LAYOUT OF FACILITIES

The layout and the building design of an institutional wholesale grocery warehouse restrict the work methods and consequently the efficiency of the operation. Buildings and layout should be carefully planned to provide an efficient warehouse operation. The following guides should be considered when planning a new building, a warehouse addition, or the renovation of the existing facility.

1. Plan the layout before the building.

When plans are being made to construct a new building, the warehouse layout should be planned first and the building designed around the layout.

2. Provide adequate aisles.

Aisles should be planned to prevent backtracking and unproductive traveling by order selectors. Provide aisles 10 feet wide for use of counter-balanced forklift trucks and 7 feet wide for use of straddle or reach-type forklift trucks.

3. Design layout based on merchandise flow.

The flow or logical path of travel and travel distances of merchandise should be major considerations in layout. Fastest moving merchandise should be located so as to minimize the travel distance from receiving to storage and from storage to shipping.

4. Provide adequate ceiling height.

Most grocery items can be stacked to a height of 20 feet or approximately 5 pallets high without excessive damage. When a building is initially constructed it is normally less expensive to obtain the necessary storage space by allowing 20 feet high stacking than by providing more floor space and a lower ceiling.

5. Provide adequate lighting.

Proper lighting reduces eye strain for warehousemen and reduces errors caused by poor illumination. Adequate lighting is necessary for safety and also provides more pleasant working conditions than poor lighting.

6. Locate repack room near truck dock.

Most items that are handled in a repack room are both received and shipped by truck. Location of repack room near the truck dock would reduce the amount of travel in shipping and receiving. This same principle also applies for a freezer and a dairy cooler.

7. Provide for expansion.

All warehouses should be planned for a future building addition. The expansion should be planned so that an addition will not disturb the initial layout.

8. Space columns to facilitate layout.

Columns should be positioned so that they are among the stacks of merchandise rather than in the aisle. A column spacing of 40 feet by 40 feet provides the most flexible layout because this spacing will accommodate the most popular sizes of pallet and aisles.

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Single copies of these publications may be obtained from the Office of Information, U. S. Department of Agriculture, Washington, D. C., 20250, without charge.

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